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The Relationship of Scores on Dynamic Indicators of Basic Early Literacy Skills, Word

Use Fluency to Word Knowledge and Shyness

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By

Janette M. Keyser

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Running Head: WUF, WORD KNOWLEDGE, AND SHYNESS

The Relationship of Scores on Dynamic Indicators of Basic Early Literacy Skills, Word Use
Fluency to Word Knowledge and Shyness

Janette M. Keyser

Rochester Institute of Technology

Abstract

Limited research has been conducted to determine the link between the Dynamic Indicators of Basic Early Literacy Skills (DIBELS); Word Use Fluency, and reading ability. In addition, a link between the personality trait of shyness and lower performance on language tests has been established. The purpose of the present study was two fold. First this study aimed to determine how well the DIBELS Word Use Fluency indicator measures vocabulary knowledge. Second, the strength of the relationship between scores on the DIBELS measure and shyness was established. This helped to understand if Word Use Fluency underestimated the vocabulary knowledge of students who are shy. Participants included 35 second-grade students from upstate New York schools, rated by their teachers as shy or not shy. Each participant was evaluated with the DIBELS: Word Use Fluency and Oral Reading Fluency, Receptive One Word Picture Vocabulary Test, and the Expressive One Word Picture Vocabulary Test. A significant negative correlation existed between the shyness rating and Word Use Fluency. In addition Word Use Fluency was significantly correlated with expressive vocabulary for not shy students. A Multivariate Analysis of Variance indicated a significant difference between the performance of shy students and not shy students on Word Use Fluency, but no difference on the Expressive One Word Picture Vocabulary Test.

The Relationship of Scores on Dynamic Indicators of Basic Early Literacy Skills, Word Use Fluency to Word Knowledge and Shyness

The National Reading Panel (NRP) converged to address a congressional charge to assess the existing research on the effectiveness of various approaches to teaching children to read. After reviewing previous literature on reading and holding public hearings, the NRP settled on reviewing the research on instructional approaches in five main skills necessary for successful reading; Phonemic Awareness, Phonics, Fluency, Comprehension and Vocabulary.

Assessment measures are needed to understand a student's academic skills, especially in reading. These measures should be able to screen a large group of students to determine who may need a more thorough assessment. When a person has difficulty with reading, diagnostic assessment tools are important to determine the nature of the skill deficit. Once reading problems have been determined and interventions put into place, tools are also needed to monitor progress. Information gathered on a student's progress can provide information on how well an intervention is working to alleviate skill deficits. These tools must be brief and have multiple forms. Many of the current measures available to assess reading skills are long and time consuming. They are often used once a year to assess a student's achievement, but when students do not make progress over the course of the year, time has been lost when valuable interventions could have been put into place.

The Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2002) were developed in part to alleviate these issues. These indicators are standardized measures designed to be quick and efficient means to predict if a student will have future reading difficulty and to determine subsequent interventions to prevent reading failure. They have been

developed also to be used for frequent monitoring of progress so that valuable time is not lost to ineffective instruction.

DIBELS is made up of seven measures used to assess the five essential reading skills. Phonological awareness is assessed by Initial Sound Fluency (ISF) and Phoneme Segmentation Fluency (PSF). The alphabetic principle is assessed by Nonsense Word Fluency (NWF). Reading fluency with connected text is assessed by Oral Reading Fluency (ORF). Letter Naming Fluency (LNF) is included in DIBELS to help determine which students are at the highest risk for reading difficulties and therefore are most likely to need additional intervention. Word Use Fluency (WUF) and Retell Fluency (RTF) were added in DIBELS, 6th edition (Good & Kaminski, 2002), in part to provide explicit linkages to all five essential reading skills as outlined in the National Reading Panel report. Retell Fluency is designed to provide a comprehension check after students complete ORF. The Word Use Fluency (WUF) measure was developed to assess vocabulary in a fashion consistent with the other DIBELS measures.

WUF is administered by giving children a word and asking them to use it in a sentence. Words are given to the child for one minute. The number of words they use is recorded and analyzed. The creators of DIBELS report that “additional research is needed to establish its [Word Use Fluency] linkage to other big ideas of early literacy” (Good, Kaminski, & Smith, 2002, p. 39). Although many of the DIBELS measures have been researched and have adequate evidence to support their reliability and validity, (Elliott, Lee, & Tollefson, 2001; Hintze, Ryan, & Stoner, 2003; Kaminski & Good, 1996) WUF has less empirical support. Kaminski et al. (2004) researched WUF with a sample comprised of kindergarten through third grade. The researchers found the scores of their sample to be positively skewed in kindergarten, evenly

distributed in first grade, and negatively skewed in second and third grades, indicating a possible ceiling effect. The researchers found the alternate form reliability for one probe to range from .36-.77. When four to six probes are used the reliability is increased to .90. The researchers found moderate criterion validity with the Test of Language Development, Peabody Picture Vocabulary Test, Woodcock Johnson Listening Comprehension, and the Woodcock Johnson Reading Comprehension. A significant correlation between WUF and the Expressive Vocabulary Test was only found at the kindergarten level (Kaminski et al., 2004). Researchers need to examine more closely the validity of DIBELS Word Use Fluency. In particular, scores on this instrument might be influenced by a child's personality.

Researchers have established a link between shyness and language ability (Crozier & Hostettler, 2003; Crozier & Perkins, 2002; Evans, 1996; Gewirtz, 1948; Slomkowski, Nelson, Dunn, & Plomin, 1992). Students who are considered shy tend to speak less and use less language. The score on WUF is the number of words a student utters when using a target word in a sentence. Higher scores on WUF require students to speak and say many words, but shy students may not speak as many words as their not shy peers, making them look as if they have lower vocabulary skills. This connection between shyness and amount of language someone produces could be confounding what the WUF actually measures. WUF may underestimate a shy student's word knowledge.

The purpose of the present study is two fold. First this study aims to establish how well WUF measures vocabulary knowledge. Second, shy students' performance on vocabulary measures, including WUF, will be compared to the performance of students not rated as shy. It is possible that shy students will perform significantly lower than their not shy peers on WUF and

other measures of vocabulary.

The current study reflects three major lines of inquiry, which are summarized in the following sections. First the link between vocabulary and reading will be discussed. Second, the current research on DIBELS measures will be examined. Third, the link between language ability and shyness will be evaluated. Finally, conclusions will be drawn on the relationships between these three factors.

Vocabulary Knowledge and Reading Ability

In reviewing the literature on effective reading instruction, the NRP found that vocabulary increases with many different modes of teaching. Currently there is a plethora of means to assess vocabulary. To determine if vocabulary instruction is successful, measures that match the instruction will better assess the efficacy of learning (National Reading Panel, 2000).

Davis (1942) began an investigation to determine the important components for successful reading comprehension. After reviewing the reading literature he developed a list of nine skills needed for success in reading, with knowledge of word meanings being most important (Davis, 1942). Considering his list of nine basic skills needed for successful reading comprehension, Davis (1944) developed individual measures to look at each of the nine skills and administered these basic reading measures to 421 college freshmen. Through factor analyzing the scores on multiple choice items deemed to measure these skills, Davis determined the intercorrelations of the nine reading factors. Davis found that Knowledge of Word Meanings had the strongest relationship to all the other skills that constitute reading comprehension. This makes sense because in order to understand what is read word meanings must be recognized. (Davis, 1944).

Davis (1968) again looked at the nine basic skills in reading comprehension by testing 1,100 twelfth grade students with items from the Cooperative Reading Comprehension Tests, and the Davis Reading Tests. He analyzed the results using a cross-validated uniqueness analysis based on a large sample. The statistical technique was designed to detect non-chance unique variance. Once again vocabulary was determined to be a skill necessary for success in reading (Davis, 1968).

A strong relationship existed between reading and knowledge of words. Instruction of words and their meanings would then logically increase reading comprehension. Beck, Perfetti, and McKeown (1982) examined how an intensive vocabulary program aided reading comprehension and lexical access. Students were instructed on 104 target words over the course of 75 daily lessons for approximately 30 minutes each. The participants were 66 fourth grade students with low SES backgrounds from a small urban district. Approximately 70% of the school population was African American. One classroom was the experimental group while the control group consisted of a fourth grade class and the fourth graders from a combined third and fourth grade class. The groups were matched based on pretest scores.

The control group received language arts instruction followed by a textbook curriculum. The experimental group received vocabulary instruction and was assessed on two levels regarding the frequency of encounters with the new words called “many” and “some.” In the “some” level, 8 to 10 new words were taught and reinforced for five days. The “many” level consisted of the words used in the “some” level, but were instructed, reviewed more often and for a longer period of time. Different teachers taught each group (Beck et al., 1982).

Improvement on the vocabulary and story comprehension post tests for the experimental

group was significantly higher than the control group's scores. Significant gains in all areas of the experimental curriculum were seen. Basic word knowledge, speed of processing in activities involving the instructed words, and comprehension on tasks involving the words that were instructed on most frequently, increased as a result of the instruction. The researchers commented on the need to develop a theory regarding the importance of vocabulary to reading, as well as future research regarding instructional procedures to encourage optimal reading behavior and vocabulary knowledge (Beck et al., 1982).

The authors identified three problems with the comprehension measure used in this study. The story used to assess comprehension at the "some" level had a more complex plot than the other stories used. Also, the story plots were over-contrived due to their development around a large set of words. Lastly, the use of probes to elicit recall possibly forced children to use the probed structure rather than their own structure to generate recall (McKeown, Beck, Omanson, & Perfetti, 1983).

McKeown et al. (1983) replicated the study conducted by Beck et al. (1982) to correct for problems in the comprehension measure. Participants included were the same age and grade as those in the previous study and had similar backgrounds. Forty-one matched pairs were created across the experimental and control groups based on pre-test scores. The vocabulary program administered to the experimental group was the same as the one presented to the experimental group in Beck et al. (1982) in that the program "was designed to provide deep and fluent knowledge of words" (McKeown et al. 1983, p.17).

As in the findings of the original study, vocabulary instruction was found to strengthen the knowledge and lexical access of the instructed words (Beck et al., 1982). Comprehension was

also seen to increase in the experimental group. When examining more closely the amount of instruction given on different words (i.e., “many” vs. “some”), more instructional time did not necessarily increase reading comprehension. Performance on comprehension measures using the words given the most instructional emphasis was not significantly different than the performance on the comprehension measure using the words that received less emphasis. Future research needs to determine the shortest amount of vocabulary instructional time needed to produce the most comprehension gains (McKeown et al., 1983).

Stahl (1983) also examined the effect of vocabulary instruction on reading comprehension by comparing the effects of a mixed vocabulary instructional program and a definitional method on reading comprehension and vocabulary learning. The sample studied was comprised of 28 fifth grade students of average reading ability from a middle-class suburb. The participants were assigned by class to three different groups that were equivalent on initial reading ability.

Each group was given each of the three treatments in a different order. The definitional treatment involved students looking up isolated words in dictionaries and creating sentences using the given word. The mixed treatment provided the students with both the dictionary definitions as well as contextual information. The control treatment provided students with no special instruction on the target words (Stahl, 1983).

The results indicate that vocabulary instruction improves reading comprehension. Both the definitional condition and the mixed treatment elicited significantly greater performance on the comprehension tasks when compared to the control group. Although the mixed treatment appeared to have elicited greater effects on the passage comprehension test, these results need to

be viewed with caution. The author recommended that future research study different modes of vocabulary instruction to help determine which is most successful (Stahl, 1983).

Reinking and Rickman (1990) investigated an alternate mode of vocabulary instruction. The researchers examined how well a computer-mediated text that gave definitions to unknown words would increase attention to these words, vocabulary knowledge, and reading comprehension. Participants in this study included 60 sixth grade students from a suburban, upper-middle class, public school. The participants' reading levels were not more than one grade level below. Participants were randomly assigned to one of four treatment conditions: dictionary, glossary, select-definitions, and the all- definitions condition (Reinking & Rickman, 1990). In the dictionary condition, passages were presented on typed pages and had dictionary definitions for the target words with page numbers indicating where the words were in the passage. The glossary condition had passages on typed pages, but had a glossary page containing the target words with the passages. Students were instructed to circle any words they did not know and look them up in the given glossary. The select-definitions condition had passages presented on a computer screen. Students could request to see a definition of any target words within the framework of the material they were reading about as they read along through each screen of the passage. The all-definitions condition included passages on a computer screen where participants were required to view all of the target words and their definitions immediately after they had finished reading the corresponding screen. Participants were unable to continue on with the passage until they had read through the target word definitions. When finished with a screen, students could go back and review any of the text or target word definitions (Reinking & Rickman, 1990).

The results suggest that presenting passages on computer screens with definitions to difficult words helps to increase vocabulary learning and reading comprehension. Between the two computer-based treatment conditions there was no difference on participants' vocabulary scores, but there was a difference on comprehension scores. Because the students had to view all the difficult words and their definitions, they possibly learned more vocabulary and were better able to understand the passages more completely (Reinking & Rickman, 1990).

The research described in the previous section supports the link between reading ability and vocabulary knowledge. Not only does the knowledge of word meanings highly correlate with reading comprehension (Davis, 1942, 1944, 1968), but instruction in vocabulary apparently leads to increased knowledge of word meanings and reading comprehension (Beck et al., 1982; McKeown et al., 1983; Stahl, 1983; Reinking & Rickman, 1990).

Research on the Dynamic Indicators of Basic Early Literacy Skills

The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) is a set of curriculum-based measures meant to be used with students developing early literacy skills. These indicators are used as means of primary prevention of reading problems. The concept behind DIBELS is that they are designed to identify who may be at risk for future reading problems before major difficulties arise, and to evaluate how children's reading skills change over time. They provide ongoing feedback as to how the student is responding to instruction. They are time efficient, easy to administer frequently, and are cost effective (Kaminski & Good, 1996).

Kaminski and Good (1996) investigated the reliability, validity, and sensitivity of Phonemic Segmentation Fluency, Letter Naming Fluency, and Picture Naming Fluency: three measures found in DIBELS used to assess the phonological awareness component of reading.

The participants included two cohorts, 37 kindergartners and 41 first graders. The participants were from general education classes in a rural school district located in the Pacific Northwest. Each cohort was randomly divided into monitored or non-monitored groups. The monitored group was given DIBELS measures two times per week for 9 weeks while the non-monitored group was administered the same measures only at the start and finish of the 9-week period (Kaminski & Good, 1996).

All children were administered the McCarthy Scales of Children's Abilities and the three DIBELS measures at the start of the study to determine their baseline scores. Also at the start of the study, their teachers filled out the Rhode Island Pupil Identification Scale as well as a Teacher rating scale developed for this research to determine teacher views of reading achievement and readiness, progress, and risk for later reading difficulties. The students in the monitored group were then administered the DIBELS measures twice a week for nine weeks. The kindergarten cohort was additionally administered the Metropolitan Readiness Test. The first grade students in the monitored group were also evaluated by Curriculum Based Measurement reading twice a week and by the Stanford Diagnostic Reading test at the start and finish of the study. At the end of the nine weeks all students were evaluated again by the different instruments except the McCarthy Scales (Kaminski & Good, 1996).

The reliability scores were higher for kindergarten than first graders with test-retest reliability coefficients ranging from .97-.99. For first grade the reliability scores ranged from .83-.95 with Letter Naming Fluency having the greatest reliability (Kaminski & Good, 1996). The Letter Naming Fluency, Picture Naming Fluency, and Phonemic Segmentation are all reliable indicators of early literacy skills. The evaluation of criterion-related validity, through correlating

the results of all the evaluating materials, revealed positive correlations with all other measures given (.43 to .90). Fewer significant correlations between the results of the evaluating materials occurred for first grade compared to kindergarten, with Letter Naming Fluency being the highest correlation with the other criterion measures (.58 to .90). Analysis of the sensitivity of these measures revealed that change over time was detected, with greater change in kindergarten than first grade (Kaminski & Good, 1996).

Interpretations of the results of this study are limited due to the small, under representative sample used. They do reveal how confidently these DIBELS measures can be used. Future research needs to be conducted using a sample that is more representative of the United States population according to census information. Also, the sensitivity of the DIBELS measures needs to be evaluated when instruction on reading skills is added to determine if newly acquired skills are detected (Kaminski & Good, 1996).

Elliott, Lee, and Tollefson (2001) also evaluated DIBELS measures. These researchers examined the ability of Letter Naming Fluency, Sound Naming Fluency, Initial Phoneme Ability, and Phonemic Segmentation Ability to identify kindergartners who are at-risk for reading difficulties as well as equivalent forms and test-retest reliability, and validity of these measures. Initial Phoneme Ability and Phonemic Segmentation Ability were adapted by the researchers from the original DIBELS Initial Sound Fluency and Phonemic Segmentation Fluency. The researchers eliminated the timed component of the original DIBELS Initial Sound Fluency and Phonemic Segmentation Fluency to emphasize accuracy over fluency.

Participants involved in this study included 75 children in kindergarten from classrooms in schools in a moderate sized Midwestern city. Participants were administered the measures

every two weeks for 9 weeks total. Between the first and second administration of the DIBELS the Test of Phonological Awareness (TOPA) was given to groups of five or six children at a time. During the first assessment session forms A and B were alternated. During the third and fourth session form C was given. The Kaufman Brief Intelligence Test (K-BIT), and the Woodcock- Johnson PsychoEducational Achievement Battery-Revised (WJ-R) also were given during the fourth assessment session as well in a counterbalanced format. Participants' teachers completed a teacher rating questionnaire that evaluated present level of pre-reading at the end of the study (Elliott et al., 2001).

The reliability estimates obtained for the test-retest reliability fell at .90 for Letter Naming Fluency, .83 for Sound Naming Fluency, .74 for Initial Phoneme Ability, and .85 for Phonemic Segmentation Ability. Alternate forms reliability estimates all ranged from .80-.91., except for Initial Phoneme Ability, which looks phonemic awareness of the initial sound of a consonant-vowel-consonant word. Concurrent validity analysis showed the strongest relationship between the DIBELS total score and the WJ-R Skills Cluster (Elliott et al., 2001).

The strongest measure that emerged was Letter Naming Fluency, as it was in Kaminski and Good (1996). Initial Phoneme Ability emerged as the weakest measure, and is cautioned by the authors against using this tool for individual assessments. The total battery score, found by averaging the subjects' Fluency and Ability scores, emerged as having the strongest psychometric properties and the authors urge those interested in using DIBELS to not use one measure alone, but use a combination of measures to obtain the most reliable and valid information (Elliott, Lee, & Tollefson, 2001). The generalizability of this research to the current DIBELS measures should be viewed with caution because the researchers modified the scoring procedures of the measures.

The timed element of original DIBELS measures was eliminated which departs from the way DIBELS is used.

Hintze et al. (2003) also examined concurrent validity of DIBELS measures. The researchers wanted to evaluate the ability of these measures to predict problems in phonological processing and awareness for kindergarten students. Participants involved in this research included 86 randomly selected kindergarten students from 10 different classrooms in three elementary schools from a mid-sized city in Northwestern Massachusetts. Data were collected by trained graduate students in early March by administering the Letter Naming Fluency (LNF), Initial Sound Fluency (ISF), and Phonemic Segmentation Fluency (PSF) DIBELS measures as well as the Comprehensive Test of Phonological Processing (CTOPP) to all participants in a counterbalanced fashion (Hintze, et al., 2003).

Correlational results indicated the strongest relationships among Initial Sound Fluency, Phonemic Segmentation Fluency and those subtests on the CTOPP that aim to measure phonological awareness and memory. Letter Naming Fluency had the strongest relationship with the tasks on the CTOPP that involved rapid naming activities, phonological awareness, and phonological memory (Hintze et al., 2003).

All analyses were conducted using author suggested cut-scores of fewer than 25 onsets per minute for the ISF task, and fewer than 35 phonemes per minute for the PSF task of the DIBELS (Good & Kaminski, 2002) When the diagnostic ability of the DIBELS measures was assessed, through using cut scores, both the Initial Sound Fluency, and Phonemic Segmentation Fluency resulted in high sensitivity and low specificity. Significantly high amounts of correct classifications were made according to the participants' CTOPP scores. A large number of false

positives were also made. The authors suggest using these DIBELS measures as screening devices with more specified indicators used after the true positives are identified to determine if a skill deficit does exist (Hintze et al., 2003).

The research presented above supports the reliability and validity of DIBELS Oral Reading Fluency, Initial Sound Fluency, Letter Naming Fluency, Phonemic Segmentation Fluency, and Nonsense Word Fluency. These measures can be used to assess the acquisition of three of the important skills needed for reading success discussed earlier (phonemic awareness, phonics, and fluency). As previously noted, the DIBELS measure Word Use Fluency added later to the measures to assess vocabulary knowledge, has not yet been thoroughly investigated.

Shyness and Language

Individuals who are shy are less likely to engage in social interactions and may not be as talkative as their not shy peers. A shy student being reticent is a potential problem when using Word Use Fluency to assess vocabulary knowledge. A score on Word Use Fluency is obtained by counting the number of words a student uses in one minute. When a student is shy, he/she will possibly speak fewer words than a not shy student. Shy students speaking fewer words could occur for a number of reasons. Shy children possibly have an innate lower language ability which discourages them from using words. Also, shy students may become anxious in a face to face testing situation and therefore avoid speaking, although knowing many words (Slomkowski et al., 1992; Evans, 1996; Crozier & Perkins, 2002; Crozier & Hostettler, 2003). A review of the literature illustrating the relationship between shyness and language ability will be discussed in following section.

The relationship between shyness and language was evaluated by Gewirtz (1948). This

researcher began exploring the relationship between word fluency and personality. Personality rating scales were given to the teachers of 38 students aged from 5-0 to 6-7. The correlations between performance on word-fluency tasks and personality traits were assessed. Results indicated a trend where those rated low on Social Apprehensiveness tended to perform better on a majority of the word-fluency tasks. These research results provided evidence to support the idea that those that tend to be shy may not perform well on tasks that require them to be fluent in their word use.

Slomkowski et al. (1992) found a link between temperament and language ability. Their longitudinal research investigated the relationship between early temperament and language to later language development. At 2 years of age, 229 children were evaluated using the Infant Behavior Record (IBR) and were administered questions that examined receptive and expressive language from the Sequenced Inventory of Communicative Development (SICD). At 3 years of age, receptive and expressive language was examined again for 212 of these same children. The summer before these children entered first grade 164 of the participants were assessed again with a full battery of language measures.

The results indicated a link between temperament and language ability at age 2 and language ability at age 7. Specifically, those who were more extraverted (social) had better developed language abilities, both receptive and expressive at ages 2 and 3, and better receptive language at age 7, as indicated by the measures. The authors believed that the scores on the language tests revealed a better developed linguistic ability for those who are more social (Slomkowski et al., 1992).

The authors discussed that the link between temperament and language could possibly

occur due to how the children interact with their environment. They hypothesized that more social children may elicit a certain response from their environments, such as the ability to engage others in conversation, which increases their experience with language and contributes to accelerated language development (Slomkowski et al., 1992).

Evans (1996) looked at the relationship between teacher rankings of students' talkativeness, parent and teacher ratings of verbal ability, and performance on formal language tests and portions of intelligence tests. The participants included 128 children who were identified by their teachers as being very verbal to very quiet. Verbal communication was assessed at the end of the participants' kindergarten year through parent and teacher rating scales. The children were then administered a battery of language tests at the beginning of first grade.

Results supported that children who were considered "very quiet," or reticent received lower scores on both the teacher and parent versions of the Verbal Communication Scale. They also earned lower scores on the Production Composite of the Clinical Evaluation of Language Functioning (CELF), the Expressive One Word Picture Vocabulary Test, as well as the Absurdities subtest from the Stanford-Binet Intelligence Scale-IV. In contrast to the results found by Slomkowski et al. (1992), reticent children's scores on the receptive tests were comparable to those in the more talkative groups (Evans, 1996).

The results of the research discussed above create a visage that those who are quieter or shy have less developed language ability. Crozier and Perkins (2002) studied whether shy children were more reticent in a task that required them to generate a story about a set of pictures. The researchers also looked for effects when picture vocabulary was controlled for to better understand if lack of vocabulary knowledge influenced shy students' reticent behavior.

The participants in this study included 10 boys and 10 girls ages 5 and 6 years as well as 10 boys and 10 girls ages 8 and 9 years. Shyness was determined by teacher ratings on a 10-point Likert-type scale. The students selected were from two different elementary schools with equal number of students from each age group. Because shyness is a characteristic that cannot be manipulated by a researcher, random assignment to different groups did not take place. The shy and not shy groups were determined by teacher ratings on the EAS Temperament Survey. They were given a definition of shyness adapted from a temperament scale (Crozier & Perkins, 2002). Because the psychometric properties of this rating scale are unknown, the researchers depended solely on the teacher's perception of the child's status as "shy" or "not shy". This perception may not be entirely accurate and necessitates that the results be viewed with caution.

Each child was assessed by their teachers as shy or not shy and placed in the corresponding group. The participants were assessed using the British Picture Vocabulary Scale (BPVS) and a story eliciting task. The researchers recorded each response and the total number of words used, number of different word roots used, and mean length of utterance (in words) were measured. Each participant was assessed by the same female researcher. The sessions were tape-recorded and coded using the Systematic Analysis of Language Transcripts (SALT) computer program by two coders blind to the "shyness" label each student had (Crozier & Perkins, 2002).

The data obtained from the BPVS was analyzed using a Mann-Whitney U-test. It was found that shy children obtained significantly lower scores on the BPVS than not shy children. The participants' coded number of words used, number of different word roots used, and mean length of utterance (in words) were also analyzed using the Mann-Whitney U-test. Shy children

obtained significantly lower scores on all three different measures. When controlling for scores on the BPVS, by computing partial correlations between shyness ratings and the three measures, all three partial correlations were significant (Crozier & Perkins, 2002).

The authors reached the conclusion that differences between shy and not shy students existed in their verbal behavior. The researchers believed that vocabulary knowledge cannot explain the differences between the two groups because this aspect was controlled. The researchers discuss that it is possible that the difference could be the lack of confidence shy students have in a structured assessment situation (Crozier & Perkins, 2002).

Crozier and Hostettler (2003) examined how shyness and situation affect test performance. They explored the competing explanations of why shy children perform lower on formal language assessments. One explanation they examined was that there are actual inherent differences in the verbal abilities of shy children. The other explanation is that the face to face testing situation triggers characteristics of shy personalities. Crozier and Hostettler (2003) studied whether the one-to-one assessment situation created the appearance of language difficulty among children characterized as shy or reticent.

The participants involved in the study involved 240 fifth graders from 24 randomly selected schools located in south Wales. Teachers were asked to nominate 2 girls and 2 boys from their class whom they thought to be most shy. The control group was formed by teachers identifying two girls and two boys who were the closest on the class list who had not been nominated creating a group of a less-shy group. The teacher then rated the children using five items from the Teacher Ratings Form of the Emotionality, Activity, Sociability (EAS) Temperament Survey as well as items adopted from Evans (1996) (Crozier & Hostettler, 2003).

Tests were administered in three different conditions. The first condition involved a face-to-face testing situation where the Crichton Vocabulary Scale and an arithmetic scale were administered. The participants were instructed to respond orally to all questions. The administration of each test was alternated per participant. The second condition involved administration of the same tests, but participants were instructed to write their answers. The tests were alternated in this condition as well. The third condition involved participants completing the vocabulary scale and arithmetic scale in a group setting with the remainder of their classes. Each condition was administered to an equal number of participants in a between subjects design (Crozier & Hostettler, 2003).

Results supported the researchers' hypothesis that the testing condition influenced the performance of shy children on tests of vocabulary. The shy students performed best in the group situation and lowest in the face-to-face condition where they answered in writing. These findings suggest that shy students felt less anxious when they are tested in a group setting, than when they are one-to-one with a test administrator. It could be that shy students feel the most trepidation when they are forced to write in the face-to-face condition. Results also provide evidence to support the hypothesis that shy children have less developed vocabulary abilities. There was a significant effect for the vocabulary measure, but not for the arithmetic test. The authors suggest that this occurred because the arithmetic test was developed for the study and the psychometric properties may not be sound (Crozier & Hostettler, 2003).

Future research needs to look into conducting a similar study that adopts a within-subjects design. This type of research will help to reduce threats to internal validity such as selection. If a within subjects design is not feasible then perhaps matching the groups would

reduce threats to internal validity. Perhaps a replication of this study should also consider using a standardized arithmetic measure. Replication would lead to more clear results as to how shy children perform on such tasks.

The results obtained by Slomkowski et al. (1992) may be due to the anxiety provoking testing situation. They did not look at the possibility that those who are more introverted, or less social, may be more reluctant to produce the communication necessary to do well on the language measures. Perhaps the results obtained in the research discussed are a result of both theories. Children who are shy are less likely to interact socially with others, therefore not exercising communication and vocabulary, leaving their language ability to be underdeveloped when compared to their more socially adept peers. The one-to-one assessment situation may also produce lower performance than would be expected due to the stressful circumstances.

The relationship between shyness and language as well as shyness and one-to-one assessment may impact the validity of the WUF in DIBELS. Those who are shy may be reluctant to use more words and therefore perform at a level that under represents their ability. They will then look as if they are performing at a lower level than their more talkative peers. Using the WUF to predict those with early literacy difficulty may over identify shy children as those at risk reading problems.

Conclusions and Research Purpose

As established by Davis (1942, 1944, 1968) reading comprehension and word knowledge are strongly related. Reading comprehension can be increased by teaching vocabulary in a thorough and systematic manner (Beck et al., 1982; McKeown et al., 1983; Stahl, 1983; Reinking & Rickman, 1990) Clearly vocabulary plays an important role in reading ability.

Without knowledge of words, individuals would not be able to read.

When trying to understand if a child is going to have trouble reading, measures of vocabulary are necessary components of an assessment system. If a child is deficient in word knowledge instruction in decoding and phonics will not suffice. Children could have high ability in decoding, but if those children have limited vocabulary then they will not understand the words they have read. The Word Use Fluency measure in DIBELS has the potential to indicate children who are deficient in word knowledge.

DIBELS measures have been found to have good psychometric properties. The Phonemic Segmentation Fluency and Letter Naming Fluency were both found to be reliable and valid (Kaminski & Good, 1996). Sound Naming Fluency and a modified version of Phonemic Segmentation Fluency (Phonemic Segmentation Ability) were also found to be reliable measures and valid measures. A modified version of Initial Sound Fluency (Initial Phoneme Ability) was found to be a weaker measure and the researchers cautioned against using this tool for individual assessments (Elliott, et al., 2001). Concurrent validity was also determined comparing Letter Naming Fluency, Initial Sound Fluency, and Phonemic Segmentation Fluency to the Comprehensive Test of Phonological Processing (Hintze et al., 2003). Limited research has investigated the reliability and validity of the Word Use Fluency measure.

Although the Word Use Fluency measure of DIBELS appears to measure students' word knowledge, it may underestimate the vocabulary of students who are shy. WUF is administered by giving children a word and asking them to use it in a sentence. Words are administered to the child for one minute. The number of words they use is recorded and analyzed. Those in the lowest 20th percentile of school district's local norms should be considered at risk for reading

difficulties (Good et al., 2002). A face-to-face assessment situation may cause distress for shy children and they may be less likely to use longer utterances. Past research has demonstrated a link between individuals who are shy and lower performance on vocabulary and language measures (Gewirtz, 1948; Slomkowski et al. ,1992; Evans, 1996; Crozier & Perkins, 2002; Crozier & Hostettler, 2003). These findings may implicate a potential problem with Word Use Fluency. WUF may under represent shy student's ability and over identify them as at risk for reading difficulty.

The literature review presented here has indicated the importance of vocabulary knowledge and reading, and the lack of research supporting the DIBELS Word Use Fluency measure in its relationship to reading. The purpose of the present study is two fold. First this study aims to establish how well the Word Use Fluency indicator in DIBELS measures vocabulary knowledge. Second, the strength of the relationship between scores on the DIBELS measure and shyness will be determined. Research in these areas will help in understanding whether Word Use Fluency is a valid measure of vocabulary knowledge for students who are shy. The following research questions were addressed:

1. Is WUF related to vocabulary knowledge?
- 2.) Do shy students perform differently than their not shy peers on measures of vocabulary, especially WUF?

Method

Participants

Participants included 35 second-grade students attending three different classes (18 boys and 17 girls, mean age 7.9). Twelve participants received additional AIS support outside their regular education classroom, and two received special education. The school is located in upstate New York and the current enrollment in the district is around 900. In the 2004-2005 school year the student racial or ethnic origins consisted of majority white students (96.2%). A small percentage of Hispanic, Black, and American Indian/Alaskan/Asian/Pacific Islander were enrolled as well. No students were considered to have limited English proficiency. Of the students in this district, 19.2% were eligible for free or reduced lunch in the 2004-2005 school year.

The teachers from the three second grade classrooms participated in rating their students as shy and not shy on the Emotionality, Activity, and Sociability (EAS) Temperament Survey for Children: Teacher Ratings. The teachers consisted of two females and one male. All three teachers were white. Teacher 1 taught elementary school for a total of 16 years. Ten of those years teaching were spent teaching second grade. Teacher 1 did not have special education training. Teacher 2 has been teaching for 20 years. Sixteen of those years were teaching second grade. Teacher 2 is not certified in special education, but attended many seminars on integrated and included children. Teacher 2 taught the integrated second grade classroom for many years. Teacher 3 taught for a total of 32 years. Seven of those years were teaching second grade. Teacher 3 had training in special education through seminars and workshops.

Recruitment

Participants in this study were recruited through many steps. Permission to conduct this research was first granted by the Rochester Institute of Technology Institute Review Board for the Protection of Human Subjects in Research. After permission was granted, the school described above was contacted to request permission to conduct research in their district. Once the district granted permission, through the elementary school principal, the research was presented to the second grade teachers. After teachers consented to the research, parental informational and consent letters were sent home with all second graders (See Appendix). Of the 52 letters sent out 33 were returned with consent given. The students of parents who did not consent were excluded from the study.

Confidentiality

Each student participating in the study received a number. No identifying information was recorded on test protocols, only the student codes. Access to the data was restricted to the primary investigator and the faculty research advisor. Once data was collected, test protocols were returned to the primary investigator and data was entered into a computer file. All coding sheets and test protocols were stored in a locked office, accessed only by the primary investigator. No personally identifiable information was included in any presentations of the research findings.

Materials

In order to investigate the research questions previously listed, the following measures were used: the Dynamic Indicators of Basic Early Literacy Skills, Oral Reading Fluency and Word Use Fluency, the Receptive One Word Picture Vocabulary Test, the Expressive One Word

Picture Vocabulary Test, and the Emotionality, Activity, Sociability Temperament Survey.

Dynamic Indicators of Basic Early Literacy Skills Oral Reading Fluency (DORF) is an instrument to measure overall reading ability. This instrument involves administering a grade level passage to a student individually for one minute. After a minute the words read correctly are added. This score is then compared with the expected number of words read correctly for the grade level administered. The DIBELS administration and scoring manual reported the technical adequacy of Oral Reading Fluency. The manual indicates the test-retest reliabilities range from .92-.97. The alternate-form reliabilities for passages at the same level range from .89-.94. Criterion-related validity reported ranged from .52-.91 (Good, Kaminski, & Dill, 2002).

DIBELS Word Use Fluency (WUF) purports to measure vocabulary knowledge. The child is given a word and then asked to use it in a sentence. This takes place in a one to one setting. The number of words used is counted. This is administered for one minute. The total number of words used in a minute is recorded. The technical properties of Word Use Fluency are not reported in the DIBELS administration and scoring manual.

The Receptive One Word Picture Vocabulary Test (ROWPVT) is an established measure of receptive vocabulary published by Academic Therapy Publications. This test is administered in a one on one testing situation. The student is given a word and instructed to point to one of four pictures that correspond to the word presented. Internal consistency reliability is reported in the manual as ranging from .95-.98. The stability was reported as ranging from .78-.93 with a coefficient of .84 for the entire sample. Criterion-Related validity ranged from .44-.97.

The Expressive One Word Picture Vocabulary Test (EOWPVT) is an established measure of expressive vocabulary also published by Academic Therapy Publications. This measure is also

given in a one to one situation. This test provides the student with a picture and they are instructed to give one word that describes the picture. Internal consistency reliability is reported in the manual as ranging from .96-.99. The stability was reported as ranging from .88-.97 with a coefficient of .90 for the entire sample. Criterion-Related validity ranged from .67-.90.

The EAS Temperament Survey (Buss & Plomin, 1984) is comprised of 20 items. Teachers are instructed to rate each item for the student on a scale of 1 (not very characteristic or typical of your student) to 5 (very characteristic or typical of your student). Shyness, emotionality, sociability, and activity are measured. This measure was selected due to variability in the constructs of shyness previously used. To be consistent with previous research conducted by Crozier and Hostettler (2003) and Crozier and Perkins (2002) this instrument was selected.

Procedure

Teachers completed the EAS Temperament survey to rate students on shyness. Those students earning a total rating of 3.1 or higher, out of five, on the shyness scale were then considered part of the “shy” group. Students scoring 3.0 and below were placed in the “not shy” group. Teacher ratings were not significantly different across classes, $F(2, 35) = 1.99, p > .05$.

Both shy and not shy students were administered all measures by school psychology graduate students. The graduate students involved in data collection were trained in administration of DIBELS ORF and WUF by a designated DIBELS trainer to ensure integrity. The training consisted of an overview of the measures, instruction on how to administer the measures, and opportunities to practice administration with feedback.

Two different groups of graduate student data collectors visited the school at separate times. Each data collector was assigned a specific measure to administer. During time 1, data was

collected for class A and part of class B. During time 2, data was collected for all participants in class C. Student participants were taken out of a classroom activity following the order of their class list. Because data collection for class B had not been completed at the time the graduate students collected data, the primary investigator completed the data collection for class B as time allowed in the classroom at later dates.

Inter-rater reliability was calculated for DIBELS ORF and WUF. The primary investigator simultaneously recorded a student's responses along with the graduate student data collectors for one administration. Reliability equaled 100% times the number of agreements divided by agreements plus disagreements. Reliability for ORF emerged as 100%. Inter-rater reliability for WUF emerged as 94%.

Results

Descriptive statistics and results from data analyses used to address the research questions are described below. Correlations between WUF, ORF, ROWPVT, EOWPVT, and ratings on the EAS Temperament survey were observed. Second, correlations between the ORF, WUF, EOWPVT, and ROWPVT were examined for shy and not shy students separately. Lastly, a multivariate analysis of variance was examined to determine if differences existed between shy and not shy students on WUF and EOWPVT. Subsequent univariate analyses were explored to determine where, if any, differences existed.

Pearson correlations between ORF, WUF, ROWPVT, and EOWPVT, and shyness ratings on the EAS Temperament Survey were calculated to determine the relationship between the measures. Scores on the DIBELS WUF were significantly positively correlated with scores on the EOWPVT, $r = .433, p < .05$. Students who performed greater on the WUF measure also performed well on the EOWPVT. Scores on the EAS Temperament Shy scale were significantly negatively correlated with scores on the WUF, $r = -.346, p < .05$. Students who were rated as more shy tended to perform lower on WUF. Refer to Table 2 for intercorrelations between all measures administered.

Table 1

Descriptive Statistics for Shy and Not Shy Students

| | Shy (n = 14) Mean (SD) | Not Shy (n = 20) Mean (SD) | Total (n = 34) Mean (SD) |
|--------|---------------------------|-------------------------------|-----------------------------|
| WUF | 36.79 (10.87) | 48.00 (12.35) | 43.38 (12.35) |
| ORF | 92.21 (28.80) | 84.90 (34.68) | 87.91 (32.13) |
| ROWPVT | 107.36 (10.18) | 109.65 (10.09) | 108.71 (10.04) |
| EOWPVT | 104.86 (12.35) | 108.70 (13.59) | 107.12 (13.04) |

Table 2

Intercorrelations Between Measures Used For all Students

| | Shyness | WUF | ORF | ROWPVT | EOWPVT |
|---------|---------|--------|------|--------|--------|
| Shyness | 1 | -.346* | .138 | -.167 | -.099 |
| WUF | -.346* | 1 | .167 | .108 | .433* |
| ORF | .138 | .167 | 1 | .086 | .266 |
| ROWPVT | -.167 | .108 | .086 | 1 | .471** |
| EOWPVT | -.099 | .433* | .266 | .471** | 1 |

**Correlation is significant at the .01 level (2 - tailed)

* Correlation is significant at the .05 level (2 - tailed)

Pearson correlations also were performed separately for shy and not shy students to contrast relationships between the measures. A few differences emerged between the two groups. For shy students, scores on the DIBELS ORF and EOWPVT were positively correlated, $r = .554, p < .05$. Refer to Table 3 for intercorrelations between the measures for shy students only. For not shy students, scores on the DIBELS WUF were much more strongly correlated to scores on EOWPVT, $r = .630, p < .01$. Refer to Table 4 for intercorrelations between the measures for not shy students only. Overall reading ability, measured by ORF, did not significantly correlate with any of the vocabulary measures.

Table 3

Intercorrelations for Shy Students

| | Shyness | WUF | ORF | ROWPVT | EOWPVT |
|---------|---------|-------|-------|--------|--------|
| Shyness | 1 | .019 | .204 | .263 | -.031 |
| WUF | .019 | 1 | .225 | -.167 | .021 |
| ORF | .204 | .225 | 1 | .344 | .554* |
| ROWPVT | -.263 | -.167 | .344 | 1 | .348 |
| EOWPVT | -.031 | .021 | .554* | .348 | 1 |

**Correlation is significant at the .01 level (2 - tailed)

* Correlation is significant at the .05 level (2 - tailed)

Table 4

Intercorrelations for Not Shy Students

| | Shyness | WUF | ORF | ROWPVT | EOWPVT |
|---------|---------|--------|-------|--------|--------|
| Shyness | 1 | -.015 | .106 | .068 | .054 |
| WUF | -.015 | 1 | .220 | .206 | .630** |
| ORF | .106 | .220 | 1 | -.040 | .150 |
| ROWPVT | -.068 | .206 | -.040 | 1 | .535* |
| EOWPVT | .054 | .630** | .150 | .535* | 1 |

**Correlation is significant at the .01 level (2 - tailed)

* Correlation is significant at the .05 level (2 - tailed)

A multivariate analysis of variance (MANOVA) was calculated to analyze if the differences between performances of shy and not shy students on WUF and EOWPVT were significant. Level of shyness was the independent variable and the dependent variables were the scores on WUF and EOWPVT. The Wilks' Lambda Multivariate Test indicated significant differences between a student's level of shyness and performances on the dependent variables $F(2, 31) = 3.668, p = .037$. Subsequent univariate analyses revealed that not shy students performed significantly higher on WUF ($M = 48, SD = 12.35$) than shy students' mean WUF performance ($M = 36.78, SD = 10.87$), $F(1, 32) = 7.47$. Shy students' mean performance on EOWPVT ($M = 104.85, SD = 12.35$) was slightly lower than not shy students ($M = 108.7, SD = 13.59$), however, this difference was not significant, $F(1, 32) = .708, p = .406$. Refer to Table 1 for all descriptive statistics.

Discussion

The results of this study supported the hypothesis that WUF may not be an accurate measure of shy student's expressive vocabulary knowledge. When correlations were run for the shy and not shy groups together, a significant positive relationship emerging between WUF and EOWPVT suggested that WUF was measuring expressive vocabulary. However when the correlations were run for each group separately, no relationship between expressive vocabulary and WUF emerged for the shy group. These findings indicate that WUF is an accurate measure of expressive vocabulary for not shy students, but as expected may not be indicative of the word knowledge for shy students. While other measures in DIBELS accurately measure the important principles of reading, WUF may not be valid to measure expressive vocabulary with all students.

A significant relationship was observed between student shyness and performance on WUF. As teacher ratings of shyness increased, performance on WUF decreased. In addition, not shy students performed significantly better on WUF than their shy counterparts. These results are similar to the results found by Gerwitz (1948) that students who were rated as more socially apprehensive performed lower on word fluency tasks. These findings are also consistent with those of Crozier and Perkins (2002), who discovered that differences between shy and not shy students existed in their verbal behavior. In contrast to Evans (1996), no differences between shy and not shy students were found on the EOWPVT. As found by Crozier and Hostettler (2003), the differences found in this study between shy and not shy students may have occurred because the face to face testing situation triggered characteristics of shy personalities such as producing a lower amount of language. This explanation of the lower performance of shy students can also account for the reason no difference was seen in performances on the EOWPVT. The expressive

language demands placed on students in the EOWPVT is lower than that of WUF. The EOWPVT requires the student to produce only one word while WUF requires students to produce many words, with those producing more words attaining better scores. Shy students do not have innate lower vocabulary abilities than not shy students, as seen in the similar performance between the two groups on EOWPVT. The face to face timed testing situation may elicit anxiety and shy characteristics such as reticence.

Surprisingly, ORF did not significantly correlate with vocabulary measures for the entire sample. Students who performed better on vocabulary, as measured by the EOWPVT and ROWPVT, did not necessarily read better. Second graders are still developing their print skills and vocabulary knowledge may not be as important in these early stages of reading. As the research discussed previously shows, vocabulary knowledge does play a role in reading comprehension for older students (Davis, 1942, 1944, 1968). Longitudinal research needs to be conducted in order to better understand the development of vocabulary and the impact of word knowledge on reading achievement over time.

Vocabulary is a significant factor in reading achievement and an instrument needs to be developed that can look at this skill in a short, sensitive way, similar to other DIBELS measures. Unfortunately, WUF does not seem to be the ideal tool to assess this skill. Reading fluency tends to differentiate poor readers from good readers. Word fluency does not have that same power to distinguish vocabulary knowledge. Not all words are created equal, so using more words does not necessarily indicate a broad vocabulary. One student could say a sentence in a concise manner with large, advanced words, while another student will use many short, basic words. WUF only takes into account the number of words used, not the words' level of difficulty. A new measure

needs to be created that takes into account the desired aspects of DIBELS (short, easy to administer, sensitive to change) and measures vocabulary in a way that looks into the level of difficulty of the words chosen, as well as the number used.

Also, focusing on receptive vocabulary may be a better means of assessing vocabulary knowledge when working with shy students. Taking out the stress of having to create sentences aloud in a one to one testing situation may benefit shy students. They will then be on a level playing field as their not shy counterparts. Perhaps a tool, similar to the DIBELS, ISF could be created for receptive vocabulary. The student could be shown a page with four pictures on it. The examiner will say a word and the student will point to the corresponding picture (similar to ROWPVT). However, this student will earn a score that is made up of the time taken to answer, as well as correct responses. These ideas for vocabulary measures will need to be highly researched before put into practice.

Future research in this area should focus on replicating these results with a larger, more representative sample. The sample should include students from kindergarten through third grade when early literacy skills are taught. The sample used in this study was small, and focused on second graders from a rural community. These results should be viewed with caution and may not generalize to all elementary aged students. Also, the rating scale used to classify students as shy or not shy is solely based on teacher observation. As noted in Crozier and Perkins (2002) the psychometric properties of the EAS temperament rating scale are unknown and the ratings are dependent solely on the teacher's perception of the child's status as "shy" or "not shy". The teacher's perception may not be entirely accurate and leads the results to be viewed with caution. Future researchers may desire to look into personality scales for children where the psychometric

properties are known to determine which students are shy and not shy.

In conclusion, educators looking into using the Dynamic Indicators of Basic Early Literacy Skills may do so with confidence, however, using the WUF subscale to measure vocabulary knowledge should be done with caution. Researchers may want to look into developing resources that take into account the difficulty of words used as well as the number. This new measure will also have to correct for the reticent characteristic of shy students.

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Appendix

Dear Teacher,

I am carrying out a research project which is intended to examine a fairly new assessment tool created to measure a student's vocabulary acquisition and how this relates to their reading ability.

I also want to determine if there is a difference on how shy versus not shy students perform on this task as well as other measures of vocabulary. I am writing to seek your permission to participate in the study. Participation is completely voluntary. This letter explains what your participation would involve and who to contact for further information.

Should you decide to participate in the study, you will be asked to determine which students in your class are shy and which are not shy. You will then be asked to complete a short rating scale on each of these students to determine they are actually shy or not shy. You will also receive consent letters to send home with those students you have identified. These letters will describe the activities their children will be participating, and obtain parental permission to participate in the study.

After parents have consented to have their child participate, I will be contacting you to determine when I will use the vocabulary measures with each student. Each activity will be conducted individually, at your school, in an area near your classroom (i.e. library) and will take around 30 minutes or less.

The potential benefits of participation to your students include the additional reading practice outside the classroom (they will be asked to read aloud for 1 minute) as well as extra one on one attention during the school day. You or the students may withdraw from the study at any time.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Subject identities will be kept confidential by assigning a code number to each student and to each teacher. Access to the identifying information will be restricted to myself and my master thesis advisor. Information identifying participants will be removed from any lists containing student and teacher names and corresponding identification numbers. Results from this study will be written as part of the student investigator's master thesis. No personally identifying information will be included in any presentations or written copies of the research findings. I will be happy to meet with you anytime after the study to discuss any information that is collected about your students as long as parents agree.

If you would like more information on the study before you make your decision, or want to discuss any questions or concerns that you may have, please feel free to contact myself, Janette Keyser, the graduate student working on the project or to Dr. Suzanne Graney, the project advisor (Rochester Institute of Technology, 585-475-2765). If you have questions regarding your rights as a research participant, contact the RIT IRB (585-475-7985). You will be offered a copy of this form to keep. Thank you for your willingness to help me with this study.

Sincerely

Janette Keyser
Graduate Student
Rochester Institute of Technology

Vocabulary Study Teacher Consent Form

Please indicate your decision regarding your participation by checking the blank space below.

Your decision of whether to participate will not affect your relationship with your school or district. If you decide to participate, you are free to withdraw from the study at any time. Please sign, date, and fill in your name and school in the spaces provided before returning the first copy of this form to me. The second copy is yours to keep for your records. Please contact me if you have any questions.

☐ I will participate in the research project

Teacher Name: _____

School: _____

Teacher Signature: _____

Date: _____

Dear Parent or Guardian,

I am involved in a research study to learn more about a new test created to measure vocabulary knowledge. I would also like to look at how students who are shy and students who are not shy perform on this test and other tasks measuring vocabulary. I am writing to seek permission for your child to participate. Participation in this study is completely voluntary. This letter describes the study, explains what your child's participation would involve should you decide to give permission, indicates who to contact for further information, and explains your option not to have your child participate. Permission to conduct this research in your child's school has been granted by your child's teachers and principals. You have been sent this letter because you are the parent of a second grader, and your child's teacher has agreed to participate in this study. No changes will be made in your child's educational opportunities should you decide not to grant permission.

If you allow your child to participate, your child will be asked to read aloud to a graduate student for one minute. They will also be asked to use different words in sentences for a minute. They will also be given a word and asked to point to a picture that corresponds to that word. They will also be shown a picture and asked to give a word that describes the picture. These activities will be administered in the library or hallway in a one- to-one setting by a graduate student and will take approximately 30 minutes of your child's time.

All of the above activities will be conducted at the teacher's convenience to minimize their impact of other classroom routines. There is no known risk associated with these activities. The potential benefits of participation for your child include: (a) the opportunity to receive additional reading practice outside of the classroom, (b) additional vocabulary practice outside the classroom, and (c) individual attention with an adult other than his/her teacher.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Subject identities will be kept confidential by assigning a code number to each student and to each teacher. Access to the identifying information will be restricted to myself and my master thesis advisor. Information identifying participants will be removed from any lists containing student and teacher names and corresponding identification numbers. Results from this study will be written as part of the student investigator's master thesis. No personally identifying information will be included in any presentations or written copies of the research findings.

If you would like more information on the study before you make your decision, or want to discuss any questions or concerns that you may have, please feel free to contact myself, Janette

Keyser, the graduate student working on the project or to Dr. Suzanne Graney, the project advisor (Rochester Institute of Technology). If you have questions regarding your rights as a research participant, contact the RIT IRB (585-475-7985). You will be offered a copy of this form to keep. Thank you for your willingness to help me with this study.

Sincerely

Janette Keyser
Graduate Student
Rochester Institute of Technology

Vocabulary Study Parent/Guardian Consent Form

Please indicate your decision regarding your child's participation in this study by checking one of the blank spaces below. Remember, no changes in your child's educational opportunities will result if you decide not to grant permission.

_____ I grant permission for my child to participate in the research project.

_____ I do not grant permission for my child to participate in the research project.

Please write in the following information:

Name of your child: _____

Name of your child's school: _____

Your child's teacher: _____

Your signature (Parent or Guardian): _____

Today's Date: _____

After you have filled out this form, place it in the self-addressed, stamped envelope provided, or return this form to your child's teacher by _____. Please contact me, Janette Keyser, if you would like a copy of this consent form for your records.